

LUD-5722.1

CRYSTAL STRUCTURE OF HUMAN INTERLEUKIN-22

This application claims priority to provisional application no. 60/317,937 filed September 10, 2001 and provisional application no. 60/333,150 filed November 27, 2001 both incorporated herein by reference in their entirety.

FIELD OF THE INVENTION

The present invention relates to the fields of molecular biology, protein purification, protein crystallization, X-ray diffraction analysis, three-dimensional-structure determination, rational drug design and molecular modeling of related proteins and mutants. The present invention provides crystallization methods and crystallized human interleukin-22 (IL-22). Whenever interleukin-22 or IL-22 is referenced hereafter, references is made to SEQ ID NO: 2. The crystallized IL-22 is physically analyzed by X-ray diffraction techniques. The resulting X-ray diffraction patterns are of sufficiently high resolution to be useful for determining the three-dimensional structure of IL-22, molecular modeling of related proteins and mutants.

BACKGROUND AND PRIOR ART**1. Interleukins.**

The last decade has seen knowledge of the immune system and its regulation expand tremendously. One area of particular research interest has focused on the regulatory proteins and glycoproteins of the immune system. One of the best known families of these regulatory molecules is the cytokines. These are molecules which are involved in the "communication" of cells with each other. The individual members of the cytokine family have been found to be involved in a wide variety of pathological conditions, such as cancer and allergies. Whereas sometimes the cytokines are involved in the pathology of the condition, they are also known as being therapeutically useful.

Interleukins are one type of cytokines. The literature on interleukins is vast. An exemplary, but by no means exhaustive listing of the patents in this area includes U.S.